

APPLICANT(S): ECK et al.  
SERIAL NO.: 10/451,419  
FILED: February 28, 2006  
Page 2

### AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently amended) A device for displaying a an intravascular ultrasound image of a vessel (2), the device comprising

a) a memory for storing (10) in which a sequence of intravascular ultrasound images ~~(I) is stored, the ultrasound images being~~ that are indexed by the respective locations ~~(x)~~ of their recording in the vessel (2),

b) ~~a data input for information (A) which describes a current location in the vessel (2),~~

~~{e}~~b) a display unit (12) for displaying images (I1, I2, I3, At) of the vessel (2),

c) a processor programmed to perform the following steps:

selecting wherein the device is designed to select from the memory (10) at least one ultrasound image (I2) corresponding to the a current location in the vessel (2) and to display displaying said at least one ultrasound image it on the display unit (12) concurrently with an X-ray image of the vessel.

2. (Currently amended) A device as claimed in claim 1, wherein the processor is further programmed to receive a data input for a current value of a parameter that characterizes for displaying a vessel (2) which is subject to a cyclic intrinsic movement of the vessel, that can be characterized by a parameter (E), in particular a device as claimed in claim 1, comprising  
a) a memory (10) in which a sequence of intravascular ultrasound images (I) is stored, wherein the ultrasound images being are indexed by the respective values of the parameter, (E) of the intrinsic movement at the time of recording, b) a data input for the parameter (E) of the intrinsic movement, c) a display unit (12) for displaying images (I1, I2, I3, At) of the vessel (2), wherein the device is designed to select from the memory (10) and wherein the selected said at least one ultrasound image (I1, I2, I3) corresponding corresponds to the current value of the parameter (E) of the intrinsic movement and to display it on the display unit (12).

APPLICANT(S): ECK et al.  
SERIAL NO.: 10/451,419  
FILED: February 28, 2006  
Page 3

3. (Currently amended) A device as claimed in claim 1, ~~characterized in that it comprises~~  
comprising an electrocardiograph, and wherein the (4) for recording a parameter (E) that  
characterizes the a heart phase and/or a breathing sensor for recording a parameter that  
~~characterizes the breathing phase.~~

4. (Currently amended) A device as claimed in claim 1, ~~characterized in that it comprises~~  
comprising an intravascular ultrasound probe (5) for generating the ultrasound images (I)  
~~stored in the memory (10).~~

5. (Currently amended) A device as claimed in claim 1, ~~characterized in that it comprises~~  
comprising an X-ray device (3, 7) for generating the X-ray image projection images of the  
vessel (2).

6. (Currently amended) A device as claimed in claim 1, ~~characterized in that it comprises~~  
comprising a device for injecting contrast agent into the vessel (2).

7. (Currently amended) A device as claimed in claim 2, ~~1, characterized in that it comprises~~  
comprising a further memory (11) in which angiograms (A\*) of the vessel (2) are stored, in a  
manner indexed by the respective values of with a the parameter at the time of recording, (E)  
of an intrinsic movement of the vessel (2), and in that wherein the X-ray image comprises  
device is designed to select from the further memory (11) at least one angiogram (A\*)  
selected from the further memory and corresponding to the current value of the parameter (E)  
of the intrinsic movement and to display it on the display unit (12).

8. (Currently amended) A device as claimed in claim 1, ~~characterized in that it comprises~~  
wherein the processor is further programmed to a data input for a current image (At) of the  
vessel (2) and is designed to determine the current location from the position of an object of  
interest in a current image (At), as the current location, the position of an object of interest  
~~(13).~~

9. (Currently amended) A device as claimed in claim 1, ~~characterized in that wherein the intravascular ultrasound images in the memory (10) are indexed by the respective locations (x) of their recording in the vessel (2), and in that the device is designed to display an image (At) of the vessel (2) on the display unit (12) and processor is programmed to show within this the X-ray image the geometric position of an location of recording of said at least one ultrasound image (I1, I2, I3) that is likewise displayed on the display unit (12).~~

10. (Currently amended) A method of displaying a vessel (2), comprising the steps:

a) ~~generating recording and storing a sequence of intravascular ultrasound images (I) while at the same time recording the associated locations (x) in the vessel and indexing the ultrasound images by the respective locations of their recording in the vessel,~~

b) detecting a current location in the vessel,

c) selecting at least one ultrasound image from the sequence of images (I2) corresponding to the current location,

d) displaying the selected ultrasound image concurrently with an X-ray image of the vessel(I2).

11. (Currently amended) A method as claimed in claim 10, wherein the step of recording and storing a sequence of intravascular ultrasound images further comprises indexing the ultrasound images by respective recorded values of a parameter that characterizes a cyclic intrinsic movement of the of displaying a vessel (2) which is subject to a cyclic intrinsic movement that can be characterized by a parameter (E), in particular a method as claimed in claim 10, comprising the steps: a) generating and storing a sequence of intravascular ultrasound images (I) while at the same time at the time of recording, recording the associated parameters (E) of the intrinsic movement, the method further comprising b) detecting the a current value of the parameter (E) of the intrinsic movement, ——— c) and wherein the step of selecting at least one ultrasound image (I1, I2, I3) comprises selecting said at least one ultrasound image corresponding to the current value of the parameter (E) of the intrinsic movement, d) displaying the selected ultrasound image (I1, I2, I3).

APPLICANT(S): ECK et al.  
SERIAL NO.: 10/451,419  
FILED: February 28, 2006  
Page 5

12. (New) A device as claimed in claim 2, comprising a breathing sensor, and wherein the parameter characterizes a breathing phase.